This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (currently amended) An antibody Fab fragment ~~characterized in that the~~ comprising a heavy chain constant region that terminates at the interchain cysteine of C_H1.

2. (currently amended) The antibody Fab fragment of claim 1 ~~in which~~ wherein the interchain cysteine of C_H1 is covalently linked to the interchain cysteine of C_L.

3. (currently amended) The antibody Fab ~~fraglment~~ fragment of claim 1 ~~or claim 2 in which~~ wherein the interchain cysteine of C_H1 is at position 233 of the heavy chain.

4. (currently amended) The antibody Fab fragment of claim 1 ~~or claim 2 in which~~ wherein the interchain cysteine of C_H1 is at position 127 of the heavy chain.

5. (currently amended) The antibody Fab fragment of claim 1 ~~or claim 2 in which~~ wherein the interchain cysteine of C_H1 is at position 128 of the heavy chain.

6. (currently amended) The antibody Fab fragment of claim 1 ~~or claim 2 in which~~ wherein the interchain cysteine of C_H1 is at position 235 of the heavy chain.

7. (currently amended) The antibody Fab fragment of ~~claims 1-5 in which~~ claim 1 wherein the interchain cysteine of the light chain constant region is at position 214 of the light chain.

8. (currently amended) The antibody Fab fragment of ~~claims 1-3 in which~~ claim 1 wherein the heavy chain constant region comprises ~~or consists of~~ a sequence having at least 90% identity or similarity to the sequence ~~given in~~ of SEQ ID NO:1.

9. (currently amended) The antibody Fab fragment of claim 8 ~~in which~~ wherein the light chain constant region comprises ~~or consists of~~ a sequence having at least 90% identity or similarity to the sequence ~~given in~~ of SEQ ID NO:2.

10. (currently amended) The antibody Fab fragment of ~~claims 1, 2 and 6 in which~~ claim 1 wherein the heavy chain constant region comprises ~~or consists of~~ a sequence having at least 90% identity or similarity to the sequence ~~given in~~ of SEQ ID NO:3.

11. (currently amended) The antibody Fab fragment of claim 10 ~~in which~~ wherein the light chain constant region comprises ~~or consists of~~ a sequence having at least 90% identity or similarity to the sequence ~~given in~~ of SEQ ID NO:4.

12. (currently amended) The antibody Fab fragment of ~~claims 1 to 11~~ claim 1 that has been modified by attachment of ~~to which~~ one or more effector molecules ~~are attached~~.

13. (currently amended) The antibody Fab fragment of claim 12 ~~to which~~ that has been modified by attachment of two or more effector molecules ~~are attached~~.

14. (currently amended) The antibody fragment of claim 13~~,~~ wherein an effector molecule is attached to a cysteine in the light chain constant region and to a cysteine in the heavy chain constant region.

15. (currently amended) The antibody fragment of claim 14~~,~~ wherein the cysteine residues in the heavy and light chain constant regions ~~which~~ that are attached to effector molecules would otherwise be linked to each other via a disulphide bond if the effector molecules were not attached.

16. (currently amended) The antibody fragment of claim 15 ~~where~~ wherein the light chain cysteine to which an effector molecule is attached is the interchain cysteine of C_L and the heavy chain cysteine to which an effector molecule is attached is the interchain cysteine of C_H1.

17. (currently amended) The antibody Fab fragment of ~~claims 12-16~~ claim 12 wherein the effector molecule is PEG.

18. (currently amended) A method of producing ~~an~~ the antibody Fab fragment ~~according to claims 12-17~~ of claim 12 comprising:

a. ~~Treating~~ treating an antibody Fab fragment ~~according to claims 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 or 11~~ comprising a heavy chain constant region that terminates at the interchain cysteine of C_H1 with a reducing agent capable of generating a free thiol group in a cysteine of the heavy and light chain constant ~~region~~ regions of the fragment; and

b. ~~Reacting~~ reacting the treated fragment with an effector molecule.

19. (currently amended) The method ~~according to~~ of claim 18 ~~in which~~ wherein the reducing agent is a non-thiol based ~~reductant~~ reducing agent.

20. (currently amended) The method ~~according to~~ of claim 19 ~~in which~~ wherein the ~~reductant~~ reducing agent is a trialkylphosphine.

21. (currently amended) The method ~~according to~~ of ~~claim 20~~ claim 19 ~~where~~ wherein the non-thiol based ~~reductant~~ reducing agent is tris(2-carboxyethyl)phosphine (TCEP).

22. (currently amended) The method ~~according to~~ of ~~claim 20~~ claim 19 ~~where~~ wherein the non-thiol based ~~reductant~~ reducing agent is tris(3-hydroxypropyl)phosphine (THP).

23. (currently amended) The method ~~according to~~ of claim 18 ~~in which~~ wherein either or both of steps (a) and (b) are performed in the presence of a chelating agent.

24. (currently amended) The method ~~according to~~ of claim 23 ~~in which~~ wherein the chelating agent is EDTA.

25. (currently amended) The method ~~according to~~ of claim 24 ~~in which~~ wherein both steps (a) and (b) are performed in the presence of EDTA.

26. (currently amended) A ~~mixture~~ composition comprising a mixture of two or more antibody Fab fragments~~, characterized in that~~ wherein the mixture is enriched for Fab fragments in which the C_H1 domain terminates at the interchain cysteine, the heavy chains in the fragments are not covalently bonded to the light chains, and the fragments have an effector molecule attached to a cysteine in the light chain constant region and the heavy chain constant region of the fragments.

27. (currently amended) The ~~mixture~~ composition of claim 26 ~~in which~~ wherein greater than 50% of the mixture comprises ~~a~~ Fab ~~fragment~~ fragments in which the C_H1 ~~domain~~ domains ~~terminates~~ terminate at the interchain ~~cysteine~~ cysteines, the heavy chains in the fragments are not covalently bonded to the light chains, and the fragments have an effector molecule attached to a cysteine in the light chain constant region and the heavy chain constant region of the fragments.

28. (currently amended) An isolated DNA sequence encoding the heavy and/or light chain constant regions of ~~an~~ the antibody Fab fragment ~~according to any one of claims 3-11~~ of claim 1.

29. (currently amended) A cloning or expression vector comprising ~~one or more~~ the isolated DNA ~~sequences~~ sequence ~~according to~~ of claim 28.

30. (currently amended) The vector ~~according to~~ of claim 29, wherein the vector comprises the sequence ~~given in~~ of SEQ ID NO:5.

31. (currently amended) The vector ~~according to~~ of claim 30 further comprising the sequence ~~given in~~ of SEQ ID NO:6.

32. (currently amended) The vector ~~according to~~ of claim 29, wherein the vector comprises the sequence ~~given in~~ of SEQ ID NO:7.

33. (currently amended) The vector ~~according to~~ of claim 32 further comprising the sequence ~~given in~~ of SEQ ID NO:8.

34. (currently amended) A host cell expressing the antibody Fab fragment of ~~claim 1, 2, 3, 4, 5, 6,7, 8, 9,10 or 11~~ claim 1.

35. (currently amended) ~~A~~ The host cell ~~according to~~ of claim 34 comprising ~~one or more~~ the cloning or expression ~~vectors~~ vector ~~according to claims 29-33~~ of claim 29.

36. (currently amended) A process for producing the antibody Fab fragment ~~of claim 1,2, 3, 4, 5, 6, 7, 8, 9, 10 or 11~~ of claim 1 comprising culturing ~~the~~ a host cell ~~of claim 34~~ that expresses an antibody Fab fragment comprising a heavy chain constant region that terminates at the interchain cysteine of C_H1 and isolating said fragment.

37. (currently amended) A pharmaceutical composition comprising an antibody Fab fragment ~~according to claims 1-17 and 26-27~~ of claim 1, together with one or more pharmaceutically acceptable excipients, diluents or carriers.